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OPINIONS AND DECLARATIONS RENDERED BY THE INTER- NATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

Edited by

FRANCIS HEMMING, C.M.G., C.B.E.
Secretary to the Commission

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OPINION 202

Addition of *Diplodinium* Schuberg, 1888 (Class Ciliophora) to the *Official List of Generic Names in Zoology* with *Entodinium dentatum* Stein, 1858, as type species.



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INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

COMPOSITION AT THE TIME OF THE ADOPTION OF THE RULING GIVEN IN OPINION 202

A. The Officers of the Commission

- President* : Dr. Karl Jordan, Ph.D., F.R.S. (*British Museum (Natural History), Zoological Museum, Tring, Herts, England*).
- Vice-President* : Dr. James L. Peters (*Museum of Comparative Zoology, Cambridge, Massachusetts, U.S.A.*).
- Secretary* : Mr. Francis Hemming, C.M.G., C.B.E. (*London, England*).

B. The Members of the Commission

Class 1949

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- Dr. Karl JORDAN (*British Museum (Natural History), Zoological Museum, Tring, Herts, England*) (*President of the Commission*).
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- Professor J. R. DYMOND (*University of Toronto, Canada*).
- Dr. James L. PETERS (*Museum of Comparative Zoology, Cambridge, Massachusetts, U.S.A.*) (*Vice-President of the Commission*).
- Dr. Harold E. VOKES (*United States Geological Survey, Washington, D.C., U.S.A.*).

Class 1955

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- Professor Béla HANKÓ (*University of Debrecen, Hungary*).
- Dr. Tadeusz JACZEWSKI (*Polish Zoological Museum, Warsaw, Poland*).
- Dr. Norman R. STOLL (*Rockefeller Institute for Medical Research, Princeton, New Jersey, U.S.A.*).

C. Alternate Members of the Commission at the Session held in Paris in 1948

- Professor Enrique BELTRÁN (*Instituto Mexicano de Recursos Naturales Renovables A.C., Mexico City, Mexico*).
- Dr. Edward HINDLE (*Zoological Society of London, London, England*).
- Dr. Arturo Ricardo JORGE (*Museu Bocage, Lisbon, Portugal*).
- Professor Harold KIRBY (*University of California, Berkeley, California, U.S.A.*).
- Dr. Henning LEMCHE (*Kgl. Veterinær- og Landbohøjskole, Zoologisk Laboratorium, Copenhagen, Denmark*).
- Professor Kamel MANSOUR (*King Fouad University, Cairo, Egypt*).
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- Professor Victor van STRAELEN (*Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium*).
- Professor Robert L. USINGER (*University of California, Berkeley, California, U.S.A.*).

OPINION 202

ADDITION OF "DIPLODINIUM" SCHUBERG, 1888 (CLASS CILIOPHORA) TO THE "OFFICIAL LIST OF GENERIC NAMES IN ZOOLOGY" WITH "ENTODINIUM DENTATUM" STEIN, 1858, AS TYPE SPECIES

RULING :—(1) Having regard to the fact that, as the International Commission is informed, it is no longer considered by specialists in the group concerned that Schuberg (1888) was in error when he identified with *Entodinium dentatum* Stein, 1858, the species placed by him under that name in the genus *Diplodinium* Schuberg, 1888 (Class Ciliophora), Schuberg is to be treated as having correctly cited under the specific name *dentatum*, as published by Stein in 1858 in the combination *Entodinium dentatum*, the sole species placed by him in the genus *Diplodinium* Schuberg, of which that species is therefore the type species by monotypy. (2) The generic name *Diplodinium* Schuberg, 1888 (gender of name : neuter) (type species, by monotypy : *Entodinium dentatum* Stein, 1858, as determined by Schuberg (1888), by Kofoid and MacLennan (1932) and by Wertheim (1935), is hereby placed on the *Official List of Generic Names in Zoology* as Name No. 632. (3) The specific name *dentatum* Stein, 1858, as published in the combination *Entodinium dentatum* and as determined by the authors specified in (2) above, is hereby placed on the *Official List of Specific Names in Zoology* as Name No. 7.

I.—THE STATEMENT OF THE CASE

On 24th December 1930, the late Professor Charles A. Kofoid submitted to the International Commission on Zoological Nomenclature the following application in which he asked for a ruling on the question of the type species of the genus *Diplodinium* Schuberg, 1888 (Class Ciliophora), a nominal genus

which at that time appeared to have been based upon a mis-identified type species.

ON THE TYPE OF THE GENUS *DIPLODINIUM*
SCHUBERG, 1888 (CLASS CILIOPHORA)

By CHARLES A. KOFIOD

(Department of Zoology, University of California, Berkeley, California)

(Commission's reference Z.N.(S.)13)

In our revisions of the ciliates of the ruminant stomach we meet with a type of difficulty in nomenclature for which we wish, if possible, to have some precedent in its solution, and in any case to have your advice as to the wisest mode of procedure, with a view to eliminating further confusion by later workers in this field. I am anxious to have this point settled on the soundest possible lines.

If you will refer to the paper of Schuberg published in 1888 in vol. 3 of the *Zoologische Jahrbücher für Systematik*, page 404, you will find that Schuberg therein establishes the genus *Diplodinium* for those OPHRYOSCOLECIDAE having a second membranelle zone instead of one only. This genus is readily recognised and segregated from the other ciliates of the ruminant stomach by this character. The character is a valid one.

For the single species in this genus he cites "*Entodinium dentatum*", previously described by Stein, 1858, in *Abh. d. Kais. Böhm. Ges. Wiss.* vol. 10, pages 69—70, without figures, stating: "und die Stein weniger übersehen". In this statement he clearly takes upon himself the assumption that Stein overlooked entirely the very prominent and characteristic second membranelle zone. Stein's protozoological work is characterised throughout by meticulous care in the presentation of details. It seems wholly improbable that Stein could have overlooked so prominent and so distinctive a character as the dorsal zone. Personally, I doubt the accuracy of Schuberg's assumption. Furthermore, we have the statement of Eberlein, *Zeit. Wiss. Zool.* vol. 59, pages 269—270, that he had found species with six spines resembling Stein's "*dentatum*", without the second membranelle zone and therefore referable as originally placed by Stein in the genus *Entodinium* Stein, 1858, *Abh. Böhm. Ges.* (5) 10 S.B. : 69. Schuberg, however, uses the name "*dentatum*" in connection with the animal with the dorsal membranelle zone which he assigns to the genus *Diplodinium* Schuberg, 1888, and makes the assumption that this was the species which Stein had before him.

Several of the genera in OPHRYOSCOLECIDAE run a series of ortho-genetic pattern in which the spines increase in number from none to at least six. It is therefore theoretically probable that Stein and Eberlein were right, and that both saw a species of *Entodinium* Stein with six spines, to which Stein gave the trivial name "*dentatum*".

Schuberg was unquestionably right in the case of a species of *Diplodinium* Schuberg with six spines, and that was unquestionably the animal which Schuberg had for which he used the name "*Diplodinium dentatum*".

The question now is: Are we safe in stating that "*dentatum*" is the type species of *Diplodinium* Schuberg, but that Schuberg was wrong in assuming that this was the same as Stein's *dentatum*? If the trivial name *dentatum* is not available, may we designate some other species as the type of *Diplodinium* Schuberg and thus preserve the generic name?

II.—THE SUBSEQUENT HISTORY OF THE CASE

2. In March 1935 the then Secretary (the late Dr. C. W. Stiles) submitted this case to the Commission in Circular Letter 290 with a suggestion that it might be found convenient to deal with it at the Session which the Commission was to hold at Lisbon in September of that year.

3. The circulation of the foregoing Circular Letter elicited the following comment from Professor Rudolf Richter (*Senckenbergische Naturforschende Gesellschaft, Frankfurt a.M., Germany*) and Dr. Robert Mertens in a letter written by the former on 18th July, 1935:—

Der Gattungsname *Diplodinium* Schuberg, 1888, is untrennbar mit den Artbegriff *Entodinium dentatum* Steinn, 1858, verbunden. Was Stein unter *Entodinium dentatum* verstanden hat, ist eine rein systematische Frage, von deren Entscheidung die Anwendung des Gattungsnamens *Diplodinium* abhängen wird.

4. Owing to the absence, through ill-health, of the Secretary (Dr. Stiles) and the fact that in consequence the papers relating to this case were not available in Lisbon, it was not possible for the International Commission to deal with this case during the Session which it held in 1935.

5. In 1938 the documents relating to this and other current cases were transferred to the care of Mr. Francis Hemming, who

in October 1936 had been elected Secretary to the Commission on the retirement of Dr. Stiles. On receipt the documents relating to this case were given the Registered Number Z.N.(S.)13. It had not been found possible to make any further progress with this case when in September 1939 the records of the Commission were evacuated from London to the country as a precaution against the risk of destruction through air raids. The Secretariat in London was re-opened in 1942 and steps were immediately taken to establish the *Bulletin of Zoological Nomenclature* as a means for bringing to the attention of zoologists applications submitted to the International Commission for decision. Work was at once started on outstanding applications with a view to arranging for their publication in the newly established *Bulletin*. Work on the present case was resumed in August 1944 and in the following month the present application was sent to the printer.

6. When preparing this case for publication, the Secretary (Mr. Hemming), in agreement with Dr. Karl Jordan (then President of the Commission), came to the conclusion that, if the Commission were to take the view that the nominal genus *Diplodinium* Schuberg, 1888, was based upon a misidentified type species, it would not be appropriate for it to confine its decision to a statement to this effect, for the problem submitted would still remain unsolved until a definitive ruling had been given on the question of the species to be accepted as the type species of this genus. Accordingly, on 24th August 1944, Mr. Hemming addressed a letter to Professor Kofoid asking him for the additional information required. On 3rd January 1945, a letter dated 11th December 1944 was received by the Secretary from the late Professor Harold Kirby (*University of California, Department of Zoology, Berkeley, California, U.S.A.*) stating that Professor Kofoid, who by this time had retired, had handed to him the letter which on 24th August 1944 the Secretary to the Commission had addressed to Professor Kofoid; Professor Kirby added that, if a copy of Professor Kofoid's original application were to be sent to him, he would be glad to study the problem and to furnish his views on the issues involved. This offer was welcomed by the Secretary, and on 17th March 1945 Professor Kirby wrote a long letter containing information which threw an entirely new light upon this case, for it appeared that, during the

period which had elapsed since the original submission of the present application, further taxonomic work had satisfied leading specialists that, contrary to what had previously been thought, Schuberg, when describing his genus *Diplodinium* in 1888 had not made an error of identification when he assigned the name *Entodinium dentatum* Stein, 1858, to the only species which he placed in this genus.

7. The relevant portion of Professor Kirby's letter of 17th March 1945 was at once sent to the printer for publication in the *Bulletin*. This portion of Professor Kirby's letter is as follows :—

I do not know the date of Professor Kofoid's communication to the Commission but in his only published material on the subject Professor Kofoid has taken exactly the opposite position to that indicated in his communication to the Commission. In that communication he thought it likely that Stein really had an *Entodinium* (with one membranelle zone) ; that Schuberg was wrong in assuming that Stein overlooked the second one and he (Schuberg) had before him the same ciliate ; and that Eberlein (1895) found (and figured) the true *Entodinium dentatum* studied by Stein. But Kofoid and MacLennan (1932 : 57) in a section of their monograph on *Diplodinium* entitled " Type species of *Diplodinium* Schuberg " wrote :—

Eberlein (1895) disputed the existence of the two membranelle zones reported by Schuberg in Stein's *E. dentatum* and claimed to have found only an adoral spiral in this species. Since none of the many later workers has corroborated Eberlein's findings, but many times have found ciliates corresponding to Schuberg's description, we feel that Eberlein was mistaken, and that Stein's *E. dentatum* and Schuberg's *Diplodinium dentatum* are identical.

Wertheim (1935 : 418) gave a discussion of " *Entodinium dentatum* " which bears upon the question of whether or not the type species of *Diplodinium* was erroneously determined by Schuberg. The discussion is worthy of particularly careful consideration, because Wertheim's paper is a comprehensive monographic treatment of OPHRYOSCOLECIDAE based on studies in ruminants in Europe where Stein and Eberlein worked. Wertheim is emphatic in his opinion that the type species of *Diplodinium* is properly named *Diplodinium dentatum* (Stein, 1858) Schuberg, 1888. It is the ciliate that Stein studied and that Schuberg had before him. The distinctive caudal structure of six spines is not found in any other ophryoscolecid, and there is no doubt that Stein and Schuberg were concerned with the ciliate that Fiorentini later (and unnecessarily) named *Diplodinium denticulatum*. Eberlein was clearly mistaken in supposing that he found an *Entodinium* correspond-

ing to Stein's description. No one before or after Eberlein has seen a true *Entodinium* with this caudal structure—not even in the same host species, in the same regions, in the same material Stein studied. (All these assertions are quoted from Wertheim.)

If the International Commission places *Diplodinium* on the *Official List of Generic Names in Zoology*, it seems to me that its type can properly be given as *Diplodinium dentatum* (Stein, 1858) Schuberg, 1888, as in the monographs by Kofoid and MacLennan (1932) and Wertheim (1935). The case for this name is reasonably clear cut, and the exercise of the plenary powers should not be required. It was the only named species included in *Diplodinium* when that genus was established, and we are in a better position to know what organism the early authors dealt with than we can reach in various other protozoan groups. It may be of interest, however, that Schuberg did not actually give the combination *Diplodinium dentatum*. It is implied in his use of the name *Entodinium dentatum* and his assignment of that ciliate to the new genus *Diplodinium*.

References

- EBERLEIN, R., 1895. Über die im Wiederkäuermagen vorkommenden ciliaten Infusorien *Z. wiss. Zool.* **59** : 233—304
- FIorentINI, A., 1889. Intorno ai Protisti dello stomaco dei Bovini (Pavia, frat. Fusi)
- KOFOID, C. A., and MACLENNAN, R. F., 1932. Ciliates from *Bos indicus* Linn. II. A revision of *Diplodinium* Schuberg. *Univ. Calif. Publ. Zool.* **37** : 53—152
- SCHUBERG, A., 1888. Die Protozoen des Wiederkäuermagens. I. *Bütschlia*, *Isotricha*, *Dasytricha*, *Entodinium*. *Zool. Jb. Syst.* **3** : 365—418
- STEIN, F., 1858. Über mehrere neue im Pansen der Wiederkäuer lebende Infusoriensthierle *Abh. Böhm. Ges. Wiss.* **10** : 69—70
- WERTHEIM, P., 1935. Infusoriji iz želuca preživača s područja Jugoslavije (etc.) *Veterinarskog Arhiva* **5** : 388—526

8. In addition, on the receipt of Professor Kirby's letter of 17th March 1945, the Secretary prepared the following explanatory note in regard to the present case for publication in the *Bulletin* :—

The application made to the International Commission by Professor Charles A. Kofoid for a ruling as to the type of the genus *Diplodinium* Schuberg, 1888 (Class Ciliophora) was contained in a letter dated 24th December 1930. This application was transferred to me by my predecessor shortly before the outbreak of war in 1939, together with the papers relating to certain other uncompleted cases then before the Commission. Owing to wartime conditions it was not

until 1944 that I was able to examine the papers relating to this and other outstanding cases with a view to their publication in the *Bulletin of Zoological Nomenclature*, which had been founded in the previous year for the purpose of publishing documents of this kind. In preparing Professor Kofoid's application for the printer, it became apparent that additional information was needed, for, if the Commission were to take the view (suggested in Professor Kofoid's application) that Schuberg was in error when he identified as *Entodinium dentatum* Stein, 1858, the species which he (Schuberg) took in 1888 as the type of his monotypical genus *Diplodinium*, it would be necessary for the Commission to indicate what was in fact the oldest nomenclatorially available name for the species so misidentified.

I accordingly wrote to Professor Kofoid on 24th August 1944, asking for information on this question. On 3rd January 1945 I received a letter dated 11th December 1944 from Professor Harold Kirby, Department of Zoology, University of California, stating that in view of his age Professor Kofoid did not feel able to deal with this matter and had asked him (Professor Kirby) to do so on his behalf. Professor Kirby's conclusions were embodied in a letter dated 17th March 1945, in which he stated that, if it was ultimately concluded that the name *Entodinium dentatum* Stein, 1858, did not apply to, and therefore could not be used for, the species selected by Schuberg as the type of the monotypical genus *Diplodinium* Schuberg, 1888, the next name (and therefore in those circumstances the correct name) for the type species of that genus was *Diplodinium denticulatum* Fiorentini, 1889 ("Intorno ai Protisti dello stomaco dei Bovini". Pavia, frat. Fusi). At the same time Professor Kirby added that he had re-examined the premises upon which Professor Kofoid's application of 1930 had been based and drew attention to the different conclusions on this subject which had later been formed by Professor Kofoid (Kofoid and MacLennan, 1932) and by Wertheim (1935).

The additional information kindly furnished by Professor Kirby on behalf of Professor Kofoid throws an entirely new light on the application now before the Commission. The relevant portions of Professor Kirby's letter are published above, in order that all the available data may be assembled for the consideration of this case.

9. Although, as already explained (paragraph 5) Professor Kofoid's application was sent to the printer in September 1944, difficulties arising from paper rationing, shortage of labour at the printing works and similar causes led to delays, as the result of which publication did not take place until June 1946 (*Bull. zool. Nomencl.* 1 : 167). When Professor Kofoid's application was published, it was accompanied both by Mr. Hemming's explanatory note (paragraph 8 above) (*ibid.* 1 : 168) and by Professor Kirby's letter (paragraph 7 above) (*ibid.* 1 : 169—170).

III.—THE DECISION OF THE INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

10. The present application was considered by the International Commission on Zoological Nomenclature at the Thirteenth Meeting of its Paris Session held at the Sorbonne in the Amphithéâtre Louis-Liard on Monday, 26th July 1948, at 1730 hours. The following is an extract from the portion of the Official Record of the Proceedings of the International Commission setting out the decision reached by it in regard to this case at the foregoing meeting (Paris Session, 13th Meeting, Conclusion 24) (1950, *Bull. zool. Nomencl.* 4 : 379—381) :—

THE COMMISSION :—

- (1) took note that it was no longer considered by specialists in the group concerned that Schuberg (1888) was in error when he identified with *Entodinium dentatum* Stein, 1858, the species placed by him under this name in the genus *Diplodinium* Schuberg, 1888 (Class Ciliophora).
- (2) agreed that, in view of (1) above, the type species of the foregoing genus was correctly cited by Schuberg under the trivial name *dentatum* (as originally published by Stein in 1858 in the binominal combination *Entodinium dentatum*) ;
- (3) agreed :—
 - (a) to place the generic name *Diplodinium* Schuberg, 1888 (type species by monotypy : *Entodinium dentatum* Stein, 1858, as determined by Schuberg (1888), by Kofoid and MacLennan (1932) and by Wertheim (1935), on the *Official List of Generic Names in Zoology* ;
 - (b) to place the trivial name *dentatum* Stein, 1858 (as originally published in the binominal combination *Entodinium dentatum* and as identified by the authors specified in (a) above) on the *Official List of Specific Trivial Names in Zoology* ;
- (4) agreed to render an *Opinion* recording the decisions specified in (1) to (3) above.

11. The following are the original references for the names which appear in the decision set out in the immediately preceding paragraph :—

dentatum, *Entodinium*, Stein, 1858, *Abh. Kais. Böhm. Ges. Wiss.*

10 : 69

Diplodinium Schuberg, *Zool. Jahrb. Syst.* 3 : 369, 404

12. The gender of the generic name *Diplodinium* Schuberg, 1888, referred to in the decision quoted in paragraph 10 above, is neuter.

13. The decision taken in the present case was reported to, and approved by, the Section on Nomenclature of the Thirteenth International Congress of Zoology, Paris, 1948, at its Fifth Meeting held on 26th July 1948 (1950, *Bull. zool. Nomencl.* 5 : 106).

14. The Ruling given in the present *Opinion* was concurred in by the sixteen (16) Commissioners and Alternate Commissioners present at the Paris Session of the International Commission, namely :—

Beltrán *vice* Cabrera ; Boschma ; Bradley ; di Caporiacco ; Hemming ; Hindle *vice* Jordan ; Jorge *vice* do Amaral ; Kirby *vice* Stoll ; Lemche *vice* Dymond ; Mansour *vice* Hankó ; Metcalf *vice* Peters ; Riley *vice* Calman ; Rode ; Spärck *vice* Mortensen ; van Straelen *vice* Richter ; Usinger *vice* Vokes.

15. The Ruling given in the present *Opinion* was dissented from by no Commissioner or Alternate Commissioner present at the Paris Session.

16. At the time of the adoption of the Ruling given in the present *Opinion*, the expression prescribed for the second portion of the binomen which constitutes the scientific name of a species was the expression "trivial name" and the *Official List* reserved for recording such names was styled the *Official List of Specific Trivial Names in Zoology*, the word "trivial" appearing also in the title of the *Official Index* reserved for recording rejected and invalid names of this category. Under a decision taken by the

Fourteenth International Congress of Zoology, Copenhagen, 1953, the expression "specific name" was substituted for the expression "trivial name" and corresponding changes were made in the titles of the *Official List* and *Official Index* of such names (1953, *Copenhagen Decisions zool. Nomencl.* : 21). The changes in terminology so adopted have been incorporated in the Ruling given in the present *Opinion*.

17. The prescribed procedures were duly complied with by the International Commission on Zoological Nomenclature in dealing with the present case, and the present *Opinion* is accordingly hereby rendered in the name of the said International Commission by the under-signed Francis Hemming, Secretary to the International Commission on Zoological Nomenclature, in virtue of all and every the powers conferred upon him in that behalf.

18. The present *Opinion* shall be known as *Opinion Two Hundred and Two (202)* of the International Commission on Zoological Nomenclature.

DONE in London this Seventeenth day of November, Nineteen Hundred and Fifty-Three.

*Secretary to the International Commission
on Zoological Nomenclature*

FRANCIS HEMMING